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1042-79

WORKING PAPER  
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THE ADVISOR PROJECT:  
A STUDY OF INDUSTRIAL MARKETING BUDGETING  
(non-technical overview)

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January 1979

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### Abstract

This paper provides an overview of the ADVISOR studies, aimed at the marketing mix problem for industrial marketers. After five years of work, covering nearly 200 producted-situations within 27 American companies, the results are available.

The ADVISOR work provides a new form of situation-specific guidelines for setting advertising and marketing budgets, for allocating those budgets, for changing spending levels from one year to the next and for determining distribution-channel strategies.

The results are available in the form of a computerized guideline model, which can be generated from the answers to 19 questions about the product and its market. The uses of the results for product audits, budgetary planning and developing guidelines in new spending situations is reviewed.

## 1. The ADVISOR Project Background and Overview

This document reports the results of research on the ADVISOR project (ADvertising Industrial products : Study of Operating Relation-ships), the goal of which is to provide guidance for setting the marketing budgets for industrial products.

Every company selling industrial products faces the marketing mix problem: how should funds be allocated to such activities as direct sales, customer service, and marketing communications (advertising and other customer-directed promotions)? Should a given product be advertised at all? What types of communications will best support current selling objectives? Are there special requirements, in this market, at this time, that indicate a need or opportunity for changes in marketing expenditures?

Each company brings much experience and thought to setting budgets and making plans for marketing communications. However, to a large degree, these decisions are based on impressions rather than facts. Very little qualified intelligence exists on the relation of product and market characteristics to marketing expenditures for industrial products. One reason for this is that to conduct special studies for each individual product would be prohibitively expensive.

There are at least three kinds of methods for allocating communications expenditures:

- 1) Guideline method (rules of thumb). This includes such suggestions as "budget a constant percent of sales," "match competition," etc.

- 2) "Objectives" (task) method. This uses intermediate measures of effectiveness for evaluating communications programs and establishing cost constraints for various portions of total expense. It calls for explicit thought about various issues such as position in product life cycle, state of the marketing environment and corporate objectives.
- 3) Explicit modeling and/or experimentation. This approach attempts to relate marketing actions to profit or other objectives via theory and direct measurement.

None of these methods have been found to be cure-alls. Present guideline methods fail to answer the hard questions like "What percent of sales?" or "Why match competition -- what makes us think they're right?" Task methods introduce intermediate variables but have difficulty relating them clearly to final measures of effectiveness. Explicit modeling and experimentation are generally expensive. Basically, not enough is known about the sales response to industrial communications.

Yet, on the positive side, it is obvious that a large number of marketers have been making decisions for a long time and that in some "survival of the fittest" sense they have been successful. This means that in a pragmatic way they have learned enough to make good decisions "on the average". A careful study of current practice, therefore, offers the possibility of uncovering a wealth of accumulated practical knowledge and putting it in a form where it can be used.

This is the basis of the ADVISOR studies. Begun in 1973 with the help of the Association of National Advertisers, the project has gone through two phases and involved 27 participating companies (table 1) and 197 products. These products represent over \$1/2 billion in selling expense and over \$9 billion in annual sales. There is a mixture of large and small (under \$1 million in sales) products; the data base matches up well with the mix of products for almost any company.

Table 2 compares some ADVISOR operating ratios from 1973 with those in 1975. (Here marketing is defined as Advertising plus Personal Selling plus Technical Service spending, direct plus overhead but not including management expense. Advertising includes all impersonal marketing communications: trade and technical press, exhibitions and trade shows, sales promotions, etc.)

Table 3 gives the principal product category, pointing to the diversity of the data.

Thus, ADVISOR is based on a large set of data, from a diverse set of companies.

But how many left-handed widgets are there?, you might ask. And that's an important question, if one is a left-handed widget maker. Clearly, the ADVISOR data base does not contain large numbers of products in every narrowly defined industry. A key ADVISOR finding is that it is not the specific characteristics of the physical product (size, weight, number of switches, wiring details, etc.) but more general product characteristics that relate to budgeting practice.

For example, consider the advertising budget for sulfuric acid. Very low in most companies we know because: it is late in its life cycle, selling margins are low, there are a small number of potential customers whose sales

Table 1: ADVISOR PARTICIPANTS

|                         |                    |
|-------------------------|--------------------|
| AT & T Long Lines       | 3M                 |
| Chase Manhattan         | Monsanto           |
| Collins & Aikman        | Nordson            |
| Continental Can         | Photomaker         |
| Dupont                  | Olin Corporation   |
| Emery Industries        | Owens Corning      |
| GE                      | Pittsburgh Corning |
| Goodyear                | SCM                |
| Harris Semiconductor    | Siliconix          |
| Inland Steel            | Singer             |
| International Harvester | Union Carbide      |
| International Paper     | U.S. Steel         |
| IT & T                  |                    |
| Joslyn Manufacturing    |                    |

Table 2: ADVISOR OPERATING RATIOS

|                   | <u>ADVERTISING<br/>SALES</u> | <u>ADVERTISING<br/>MARKETING</u> | <u>MARKETING<br/>SALES</u> | <u>SAMPLE<br/>SIZE</u> |
|-------------------|------------------------------|----------------------------------|----------------------------|------------------------|
| 1973 ADVISOR Data | 0.7%                         | 9.9%                             | 6.9%                       | 66                     |
| 1975 ADVISOR Data | 0.7%                         | 10.0%                            | 7.0%                       | 131                    |

Table 3: ADVISOR PRINCIPAL PRODUCT CATEGORY

|                         |       |                              |       |
|-------------------------|-------|------------------------------|-------|
| Machinery and Equipment | 21.1% | Partially Processed Material | 6.5%  |
| Raw Material            | 3.3%  | Chemical                     | 11.4% |
| Fabricated Material     | 39.0% | Other                        | 1.6%  |
| Component Part          | 17.1% |                              |       |

are concentrated, etc. A new piece of farm machinery would have the opposite story to tell -- early in the life cycle, etc. and would spend more in advertising.

The result is that the product and market characteristics we have studied are the main ones used in determining advertising and marketing budgets. And the nearly 200 products studied in ADVISOR probably include many like almost any product outside the data base. The data base includes 51 products in the category of fabricated material, 79 products in the mature stage of the life cycle, 54 products that sell 90% or more of their product direct to users, etc.

There may not be a product that is physically like any outside product. But among our 200 products, there are surely several that have product and market profiles that are close to almost any product one can name.

## 2. ADVISOR Results

### 2.1. Industrial advertising effects

A careful review of studies of industrial advertising (Lilien et al. [2] ) shows that most suffer from serious methodological weakness. Nevertheless, certain themes emerge from their accumulated bulk:

- 1) Industrial advertising and personal selling often perform complementary and/or synergetic roles.
- 2) Increasing the share of total selling expense on advertising may be associated with lower selling costs relative to sales.
- 3) Economies of scale may exist for industrial advertising.

ADVISOR has identified key product-market and environmental factors associated with budgeting practice; these results are generally consistent with analyses performed on the PIMS data base. (Buzzell and Farris [1])

## 2.2 Norm models

The level of advertising and marketing expenditures and the split of marketing expenditures into advertising and personal selling are determined by a few key market characteristics. (See Lilien [3] for complete details.) The primary influencing factors are product sales levels and numbers of customers. Other factors of key (but lesser) importance are:

- stage in the life cycle
- customer sales concentration
- fraction of product sales which are made-to-order
- company plans for the product
- technical complexity of the product
- perceptions of product quality
- distribution channel strategy.

Analysis shows that it is fruitful to study advertising budgeting as a two step process, i.e. a marketing budget is set and then a split of that budget into personal and impersonal communications is made. This two-stage view clarifies the role of different product and market characteristics. All the variables above affect the marketing budget.

The advertising budget is affected by sales, number of users, concentration, fraction of made-to-order sales, stage in the life cycle and product plans. The split of marketing (the advertising/marketing ratio) is affected by sales, product complexity, product perceptions and the fraction of sales direct to users.

The advertising budget can be split into personal media (those most closely associated with personal communication: sales promotion, trade shows and films) and impersonal media. No variables were significant here beyond those found significant for advertising. Overall, the level of expenditure in personal media varies more with product and market characteristics.

### 2.3. Change models

The norm models develop long-term targets for budgets: budgets change on a year-to-year basis in response to changes in the environment, modified by the level of certain key characteristics. In particular, the variables that were found to be related to year-to-year changes in advertising, advertising allocation and marketing were:

- change in the number of competitors
- change in the market share
- change in product plans
- stage in the life cycle
- customer concentration
- number of customers
- salesforce level.

Changes in advertising are affected by changes in market share, changes in the number of competitors, changes in product plans, the number of customers and customer concentration. Changes in marketing follow changes in advertising, which is the main tactical component of the marketing budget.

The other variables noted above influence whether the personal or impersonal portion of the advertising budget is most strongly affected. Early in the life cycle, the impersonal portion of the advertising budget is most likely to change, for example.

#### 2.4 Distribution Channel Norms

In line with our objectives of modeling the entire market mix, we hypothesize that the selection of a channel strategy is influenced by product and market factors. In particular, we model the decision about whether a captive (internal) or independent (external) means of distribution should be used. The key variables affecting this decision are:

- size of the firm
- size of an average order
- product complexity
- stage in the life cycle
- fraction of product sales produced to order
- frequency of purchase decision
- number of customers

Our analysis provides norms on the likelihood of a captive versus an independent channel of distribution.

### 3. Using the results

#### 3.1. Computerized guidelines model

The ADVISOR 2 results can be applied to specific products very easily by the use of a computerized guidelines model. A set of 19 questions are answered and provide the necessary input for the models. The program produces the typical level and common range of the following quantities:

- advertising
- personal/impersonal advertising
- marketing
- advertising change
- personal/impersonal change
- marketing change
- distribution channels

Table 4 gives one line of a typical PAR report.

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|                               | ACTUAL  | INDUSTRY NORMS |                   |
|-------------------------------|---------|----------------|-------------------|
|                               |         | CENTER         | RANGE             |
| ADVERTISING<br>(\$ THOUSANDS) | 105.850 | 357.228        | 245.062 - 520.733 |

TABLE 4. PORTION OF PAR REPORT

The advertising-to-sales ratio for this product is 105,000/14,500,000 or 0.7%. This is precisely the median level of the many products studied in ADVISOR. However, the industry norm for this product is \$357,000, more than 3 times that much. This product is in the growth stage of its life cycle, and it has a large number of customers, no one of whom is significantly large. Also, it is primarily a stock item and the company is taking a positive posture toward promotion.

Hence, ADVISOR's recommendation is an advertising level significantly above the median industry amount.

Budgeting levels do vary, even for similar product and market situations. The "range" in Table 4 gives a measure of the variability in budgeting practice. About 3/4 of ADVISOR firms find themselves within "range". Being outside the range means you are significantly different from the norm.

### 3.2. Applications

The computer program allows industrial marketers to generate norms for their products. The program can be of aid to:

- checking existing practices and possible future strategies against norms determined by the analysis.
- develop possible spending levels for products not currently using marketing communications.
- provide new input and rationale for recommending budget levels to product-marketing people.

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Furthermore, the results of the project can be of direct use for the product or advertising manager in the following ways:

- as changes take place in marketing goals or in the marketing environment, guidelines are available to adjust budgets.
- a list of variables has been identified and is available that includes the most important factors affecting budgets. Today many product managers do not collect data on all the significant factors.
- magnitude as well as the direction of change are provided.
- a norm can be produced for a product or, alternatively, a set of adjustments to an existing budget necessitated by market or product changes, can be produced.
- the effects of several, simultaneous changes can be assembled separately or jointly.

For the general manager, comparative norms can be obtained for the budget allocation across the products for which he is responsible.

#### 4. Conclusion

The ADVISOR approach has provided new guidelines against which current industrial marketing decision-making can be checked. It is significant that these norms are both quantitative and situation-specific -- that is, they recognize the key underlying product and market characteristics, the understanding of which facilitates sensible budgeting practice.

An important follow-up area of study has been M.I.T.'s project on "Multiple Situation Analysis" (Lilien [4] ) aimed not at finding what industrial marketers are doing, but determining what they should do.

An exciting early result of that study is that product profitability is less the farther spending varies (either more or less) from the ADVISOR norm! This provides important confirmation of the validity and value of the ADVISOR approach.

In sum, then, the ADVISOR results are providing an important first step in the development of quantitative tools to support the industrial marketing budget-setting process.

# REFERENCES

1. Buzzell, Robert D. and Paul W. Farris, "Industrial Marketing Costs", working paper, Marketing Science Institute, December 1976.
2. Lilien, Gary L. and Alvin J. Silk, Jean Marie Choffray and Murlidhar Rao, "Industrial Advertising Effects and Budgeting Practices", Journal of Marketing , Vol. 40 (January 1976).
3. Lilien, Gary L., "ADVISOR 2: Modeling the Marketing Mix Decision for Industrial Products", Management Science, forthcoming.
4. Lilien, Gary L. "ADVISOR 2: Multiple Situation Analysis", M.I.T. Sloan School Working Paper, forthcoming.



